



BLUNT ABDOMINAL INJURY- WHAT NOT TO BE MISSED

General Surgeon

Dr Jayanth B.N

Consultant General Surgeon, Apollo BGS Hospitals, Mysore.

**Dr. Drishya
Devasia***

Postgraduate General Surgery, Apollo BGS Hospitals, Mysore. *Corresponding Author

Dr. Nairuthya S

Consultant Surgical Gastroenterology, Apollo BGS Hospitals, Mysore.

ABSTRACT

Road traffic accident has been recognized as the most common cause of blunt abdominal injury. The most commonly injured organs are the spleen, liver, small bowel, kidneys, bladder, colorectal, diaphragm, and pancreas. Here we are presenting a case of 40-year-old lady who developed duodenal injury following blunt abdominal injury.

KEYWORDS

blunt abdominal injury, duodenal injury

INTRODUCTION

Duodenal injury (DI) accounts for approximately 3%-5% of all abdominal trauma¹ with an incidence of 25% occurring as a consequence of blunt abdominal trauma². Duodenal injury can be often missed due to their retroperitoneal location. Thus, it increases the mortality due to misdiagnosis or delay in diagnosis.

CASE REPORT

A 40-year-old female was brought to emergency department following a road traffic accident between two 4-wheeler. She was front seat passenger. She complaint of breathing difficulty, severe pain in the upper abdomen and 2 episodes of vomiting. Initial assessment was done. Patient was hemodynamically stable with a GCS of 15/15. Patient had minor abrasions and lacerations over the left forearm and right knee. Per abdomen examination revealed tenderness in the epigastric region and right hypochondrium with guarding. Chest examination showed tenderness along the left lower ribs with normal air entry on both sides. Patient was initially resuscitated with IV fluids, antibiotics, RT aspiration and analgesics. FAST scan showed hemoperitoneum and patient was advised for CECT Abdomen for further evaluation. Blood analysis showed a hemoglobin concentration of 12.4 g/dL and elevated levels of AST and ALT (500 and 380 respectively). CECT showed pneumoperitoneum due to bowel injury, grade 4 liver injury and grade 3 renal injury.



Figure 1: CECT Abdomen showing pneumoperitoneum and liver injury

Patient was taken up for emergency exploratory laparotomy. Intraoperatively there was around 500ml of bile and blood-stained fluid along with food particles. There was near total transection i.e., 3/4th circumference of the D2 portion of duodenum with the posterior and medial wall intact. Contusions was noted along the hepatic flexure of colon and anterior surface of right kidney. Serosal tear was noted along the greater curvature of stomach. Rest of the large bowel, small bowel, stomach, spleen and pancreas was found intact. She underwent primary repair of the duodenal injury in two layers and feeding jejunostomy was placed.

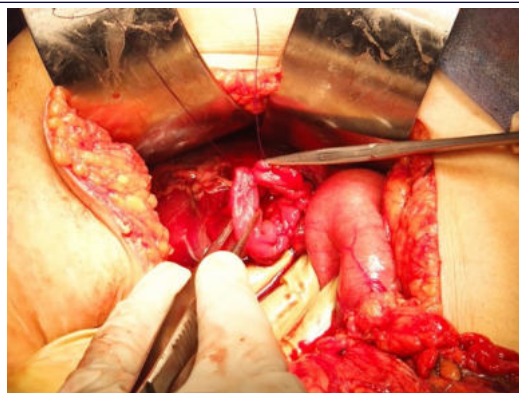


Figure 2: Intra operative image showing near total transection of the duodenum

In view of liver injury as a part of damage control surgery feeding jejunostomy was placed instead of a pyloric exclusion surgery. CECT abdomen was repeated to look for the status of the liver injury. There was a large hematoma over the laceration which was not increasing or decreasing in size. Patient was closely monitored and since she was hemodynamically stable with no active bleeding she was treated conservatively. CT abdomen with oral contrast was done on POD 6 to look for any anastomotic leak, and it showed no leak.

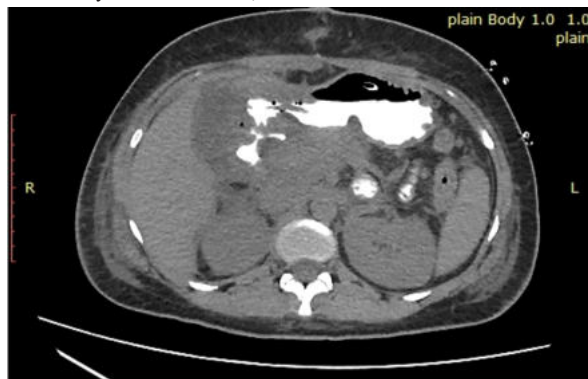


Figure 3: CT Abdomen with oral contrast showing no leak

Patient was then started on oral feeds. Patient improved symptomatically and was discharged 10 days after surgery.

DISCUSSION

The prevalence of intra-abdominal injury among the patients presenting with blunt abdominal trauma is around 13%.³ Presence of isolated duodenal injury is very rare and hence it is often overlooked. The presence of duodenum retroperitoneally claims the other reason for it to be missed. The injury can be potentially fatal due to associated

injuries to main pancreatic duct, common bile duct, portal vein, inferior vein cava, abdominal aorta due to the close proximity to the duodenum. The mechanism of injury is usually due to acceleration and deceleration impact or injury caused by the steering wheel. The most common duodenal injury sites were the second portion (36%), the third portion (18%), the fourth portion (15%) and the first portion (13%).⁴ The clinical symptoms can be vague and classical sign of peritonitis may not be present in all cases. Investigation of choice for the diagnosis of duodenal injury is CT with oral and iv contrast. However, studies have shown that few cases of duodenal injury appear normal in CT and gets missed. The American Association for the Surgery of Trauma (AAST) is the adopted system to evaluate duodenal injuries and guide management. It classifies Duodenal injuries into grades I-V with the consideration to its anatomical site, the type of injury; hematoma, laceration, partial or complete disruption, and with or without involvement of ampulla of Vater and bile duct. Treatment of duodenal injury include duodenorrhaphy with or without pyloric exclusion. Complications of surgery following duodenal injury include duodenal fistula and obstruction which causes high rate of morbidity. The incidence of duodenal fistula varied from 2-12%.⁵ Duodenal injuries mortality rate is determined according to the delay in injury recognition and repair time⁶.

CONCLUSION

Abdominal injury following blunt trauma is uncommon. Evidence of abdominal injury should always prompt us to look in the retroperitoneal area for early detection of duodenal injury. Mortality and morbidity related to duodenal injury can be reduced if detected untimely.

REFERENCES

1. Biswas S, Butler M, Sherck J. Obstructing intramural duodenal hematoma following relatively minor trauma in a child: A report of a case managed surgically and discussion of relevant treatment options. *Int J Surg.* 2008;17(2).
2. Bozkurt B, Özdemir BA, Kocer B, Unal BÜ, Dolapci M, Cengiz O. Operative approach in traumatic injuries of the duodenum. *Acta Chirurgica Belgica.* 2006 Jan 1;106(4):405-8.
3. Nishijima DK, Simel DL, Winsor DH, Holmes JF. Does this adult patient have a blunt intra-abdominal injury? *JAMA.* 2012 Apr 11;307(14):1517-27.
4. García Santos E., Soto Sánchez A., Verde J.M., Marini C.P., Asensio J.A., Petrone P.: Duodenal injuries due to trauma: review of the literature. *Cir Esp* 2015; 93: pp. 68-74.
5. McKenny MG, Nir I, Levi DM, Martin L. Evaluation of minor penetrating duodenal injuries. *Am Surgeon* 1996 Nov;62(11):952e5.
6. García Santos E., Soto Sánchez A., Verde J.M., Marini C.P., Asensio J.A., Petrone P.: Duodenal injuries due to trauma: review of the literature. *Cir Esp* 2015; 93: pp. 68-74.